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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/497,515	02/04/2000	Shuji Hitomi	Q57834	7579

7590 10/05/2004

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2100 Pennsylvania Avenue NW  
Washington, DC 20037

EXAMINER
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MERCADO, JULIAN A

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/497,515	Applicant(s) HITOMI4	
	Examiner Julian Mercado	Art Unit 1745	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 July 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3 and 5-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Remarks*

This Office action is responsive to applicant's amendment filed July 13, 2004.

Claims 1, 3 and 5-10 are pending.

### *Claim Rejections - 35 USC § 102 and 103*

The rejection of claims 1-6 and 10 under 35 U.S.C. 102(b) based on Samuels et al. (U.S. Pat. 4,524,114) has been withdrawn.

The rejection of claims 7-9 under 35 U.S.C. 103(a) based on Samuels et al. and Yamazaki (U.S. Pat. 4,110,392) has been withdrawn.

The examiner notes applicant's amendment to claims 1 and 3 by incorporating the subject matter previously recited in claims 2 and 4 (now canceled). In the prior Office action, Samuels et al. was relied upon to show that the porous polymer [1] is *on* the surface of the catalyst layer [2-6]. (emphasis added) Samuels et al. is withdrawn from teaching or least suggesting the presently claimed invention to the extent that the scope of the present claims are now further defined so that the porous polymer is provided *in* a portion of pores of the catalyst layer. (emphasis added)

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***New Rejection:***

Claims 1, 3, 6 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukuoka et al. (U.S. Pat. 5,723,173).

Claims 1 and 3 are the independent claims. Fukuoka et al. teaches a fuel cell electrode comprising a catalyst layer [2] formed in part by catalyst particles [3] on carbon powders [4]. As a matter of clarification, the examiner understands the scope of the present claims to call for a catalyst layer having, in a portion of its pores, a polymer which itself is porous. In Fukuoka et al. the polymer [5] which resides in the pores defined by the catalyst particles on carbon reside is also porous to the extent that gas channels [7] are present at the interface with the membrane electrolyte. (also applies to claim 6) Refer to col. 4 line 56-62, col. 5 line 28-43 and Figures 1 and 2.

As to claim 3, a gas diffusion layer [9] is shown as a porous substrate. (col. 4 line 40-42) In addition to the porous polymer being provided in a portion of the pores of the catalyst layer for the reasons set forth *supra*, Figures 1 and 2 show that the gas diffusion layer is partially co-extensive with the catalyst layer, thus the claimed porous polymer in the catalyst layer being in an inside portion of said substrate is considered taught by Fukuoka et al.

With respect to claim 10, the porous polymer is a fluorocarbon. (col. 4 line 56-62)

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fukuoka et al. as applied to claims 1, 3, 6 and 10 above.

The teachings of Fukuoka et al. are discussed above.

Regarding the porous polymer in Fukuoka et al. having no ion-exchange function, as the polymer is identical to that disclosed and claimed by applicant to the extent that it is a fluorocarbon polymer, it would naturally flow to inherently have no ion-exchange function as claimed, absent of a showing by applicant that the claimed invention distinguishes over the reference. *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) and *In re Spada*, 15 USPQ 2d 1655 (Fed. Cir. 1990)

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka et al. as applied to claims 1, 3, 6 and 10 above.

The teachings of Fukuoka et al. are discussed above.

With respect to the average diameter of the pores of the porous polymer or the percent degree of porosity, absent of unexpected results it is asserted that these are optimizable parameters for result-effective variables. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) The size and percent porosity of the pores is considered result-effective in that these

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parameters direct affects the flow of reactant gas and resulting polarization performance of the fuel cell. (col. 5 line 28-43)

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Commonly-owned U.S. Pat. 6,344,291 B1 to Hitomi teaches a catalyst layer containing a solid polymer electrolyte [82] and catalyst particles [83]. The catalyst layer has a polymer [85] such as PTFE provided in a portion of its pores [84]. (Figure 8, col. 15 line 22-32)

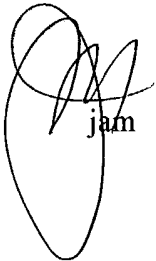
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



jam



Patrick Ryan  
SPE-AU 1745